REMARKS

The Examiner is thanked for the thorough examination of the present application. The Office Action, however, continued to reject all pending claims 14-17 and 19-20. Specifically, claims 14-17 and 19-20 stand rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement. Applicant respectfully requests reconsideration and withdrawal of these rejections.

Amendments to the Claims

Claim 14 has been amended to cancel the limitation of “said double diffused sources has a higher doping level than said first terminal and said reset transistor sources”. Furthermore, the claim 14 has been amended to add the limitation of “said first terminal is deeper than said double diffused sources”. Support of the amendment can be found in page 15, para.1, page 16, paragraph 1, and Fig. 5. Accordingly, the amendment adds no new matter to the application, and is fully compliant with the requirements of 35 U.S.C. § 112.

Rejections of claims 14-17 and 19-20 under 35 U.S.C. 112

Claim 14 stands rejected under 35 U.S.C. 112 as allegedly failing to comply with the written description requirement. Because the limitation of “said double diffused sources has a higher doping level than said reset transistor sources” has been removed from the claim, the rejection under 35 U.S.C. § 112, first paragraph has been rendered moot, and therefore should be withdrawn.

No prior art-base rejection has been advanced, and therefore, Applicant believes that the claims are deemed to define over the prior art. Notwithstanding, Applicant notes the following substantive distinctions.

Amended claim 14 recites:

> 14. A CMOS image sensor device comprising:
> shallow trench isolation regions in a semiconductor substrate, said shallow trench isolation regions separate said device;
> a sensor diode in said semiconductor substrate comprising a first terminal and a second terminal;
> a plurality of gates for transistors in said CMOS image sensor wherein said gates comprise a conductor layer overlying said semiconductor substrate with an insulating layer therebetween and wherein said transistors include reset transistors;
> source/drain regions for said transistors wherein said source regions of said reset transistors are formed in said first terminals of said sensor diodes; and
> double diffused sources only in said reset transistor sources to complete an asymmetrical source/drain structure;
> wherein said double diffused sources totally overlap said reset transistor sources;
> said source/drain regions and double diffused sources contact said shallow trench isolation regions; and
> ***said first terminal is deeper than said double diffused sources***.

(*Emphasis added*). Claim 1 patently defines over the prior art of record for at least the reasons that the prior art fails to disclose the features emphasized above.

Earlier in the prosecution of this application, claims were rejected base on Chen (US 6,392,263). In the Advisory Action previously mailed in this application, the Examiner asserted that Chen discloses a first terminal 307 wherein a double diffuse source 305 is formed totally overlapping the first terminal 307. (See lines 6-7 of the Advisory Action). Applicant respectfully disagrees.

First, if n-well 307 is constructed as the DDS and source 305 is constructed as the first terminal, the "DDS 307" must be deeper than "first terminal 305" in Chen. Chen fails to teach or suggest the claimed limitation of "**said first terminal is deeper than said double diffused sources".** As such, claim 14 clearly defines over Chen.

Second, Examiner previously asserted that the source 307 of Chen is first terminal (n-well) of the claimed embodiment. In the claimed embodiment, the first terminal 116 and source 138 are different devices with different functions. However, the source 307 and first terminal are considered as same device in the Advisory Action. In fact, the first terminal in claim 14 is n-well 116 (See Fig. 5), not source 138. Third, Chen only relevantly teaches symmetric source 307/drain 323 and n-well 305. Chen does not teach any asymmetric source/drain structure. (See Col. 5, lines 50-54 and Fig. 3). Fourth, there is no double diffuse source feature disclosed in Chen. Accordingly, Chen only relevantly teaches a symmetric source (307)/drain (323) without any DDS source.

It is therefore clear that Chen fails to teach the DDS and asymmetrical source/drain structure as claimed in claim 14.

Furthermore, the supposed improvement in Chen is moving the source 221 away from p-well 204 in Fig. 2 to n-well 305 in Fig. 3. See Figs. 2-3 of Chen. The strategy of Chen is changing the location of source, not utilizing double diffused source or asymmetrical source/drain. Chen fails to provide the basis for an obviousness rejection because it does not disclose the structure specified in claim 14, and the supposed improvements in Chen are not reflected in the claimed embodiment.

For at least these reasons, claim 14 is allowable over the cited references. Insofar as claims 15-17 and 19-20 depend from claim 14, these claims are also allowable at least by virtue of their dependency.

CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fee is believed to be due in connection with this submission. If, however, any additional fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

/Daniel R. McClure/

By: ______________________________
Daniel R. McClure
Registration No. 38,962

Thomas, Kayden, Horstemeyer & Risley, LLP
600 Galleria Pkwy, SE
Suite 1500
Atlanta, GA 30339
770-933-9500